

# **Draft: Minutes of ML-SCRF Technology Meeting (081029)**

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## **Date & Time:**

13:00-13:57 GMT, October 29, 2008, using WebEx.

## **Participants:**

L. Lilje, H. Hayano, N. Ohuchi, H. Carter, S. Fukuda, T. Peterson, A. Yamamoto, J. Carwardine, P. Pierini, E. Paterson, N. Toge, R. Kephart, M. Champion, R. Rimmer, T. Shidara

Presentation files are available at the following Indico site;

<http://ilcagenda.linearcollider.org/conferenceDisplay.py?confId=3097>

## **1) Report from PMs (A. Yamamoto)**

- Project Advisory Committee (PAC) meeting in Paris (October 19 – 20)  
SCRF project management was reported and the presentation can be found at  
<http://ilcagenda.linearcollider.org/conferenceDisplay.py?confId=2846>

The TD-phase R&D plan has been positively received.

- Close-out summary is as follows:

Creation of 3 PM is a good move and positive; AAP is a very useful move; Schedule based on phase 1 and phase 2 was fixed by outside constraints – (GDE had to adapt); Generally happy with world-wide R&D collaboration.

- SRF:

It is very positive about “plug compatibility” (especially for cavity). Only caution was that large flexibility must be carefully monitored (the number of variants); S1 global is a clear success and example of international collaboration; Looking forward for schedule on S2; General work on SRF cavities: endorse strategy on continued surface preparation R&D; Important to have good statistical data. XFEL production will help a lot; (SRF) Information flow between labs involved must be ensured by GDE.

- TTC meeting (October 20 - 23)

- High gradient:

Assessment for S0 program has been formally delivered to ILC-GDE and has been appreciated by ILC GDE, It is planned to be drafted for the ILC news-line and a formal acknowledgement by the Director should be made,

- Plug-compatibility:

Well received by TTC, for the R&D phase, still be partly concerned for the production/construction phase; Need to explain better difference of “plug-compatibility” between the R&D and production stages.

- Plan discussed for S0 in 2009 (during TTC meeting by PMs)

- Understand the Heat Affected Zone (HAZ); Electron beam weld (EBW) parameters. Difference among manufacturers.

- ‘Close the loop’ on the defects before full chemical treatment (KEK); DESY, US starting to use precision optical inspection and implementation of optical inspection QC cycle for XFEL industrial production?

- Identify quench-causing defects >20 MV/m; Equator EBW HAZ? Radius? Crystallography / Impurities?

- Study interaction between EBW / annealing / weld strength / RRR; Singer, et. al., TESLA 2003-07.

[http://tesla.desy.de/new\\_pages/TESLA\\_Reports/2003/pdf\\_files/tesla2003-07.pdf](http://tesla.desy.de/new_pages/TESLA_Reports/2003/pdf_files/tesla2003-07.pdf)

- Present plans provide adequate cavities and treatment cycles; Studies and recommendations are a top priority.

- Visiting BARC (October 24)

ILC-GDE visited BARC. BARC is aiming at industrial accelerator development and has very high “in-house” effort. SCRF cavity development is planned with Nb-Cu lamination using spattering (like) technique and they are expecting the measurement of its superconducting properties by other labs. A long term cooperation program may be planned.

## **2) Brief Report from GLs**

- Cavity Integration (H. Hayano)

4-cavity cryomodule is under high power test at STF, and one cavity successfully reached at the gradient level of 32 MV/m (which had reached 29 MV/m at the vertical test before). One AES cavity was first EP-ed at the STF facility. Hayano, Saeki and Ueno visited RRCAT/India after the TTC meeting and collaborations for R&D on EP, EBW and so on were discussed.

- Cryomodule (N. Ohuchi)

The S1-Global cryomodule design has been almost completed and every-other-week webex meetings

on this issue are scheduled, starting from right after this SCRF webex meeting.

- HLRF (S. Fukuda)

HLRF related tests at STF are scheduled to perform in December. Fukuda visited SLAC at the end of September after the PAC and looked on the MARX modulator performance. SLAC type tap-off will be offered for S1 global test at STF. Klystron cluster scheme and other ideas will be discussed in the coming HLRF webex meeting.

### **3) Discussions on ILC Chicago meeting agenda (H. Hayano)**

- ML Session Overview

Monday: Primary Session; Cavities and Cryomodule, Secondary Session; TBD, HLRF meet with CFS

Tuesday: Primary Session; HLRF/LLRF, Secondary Session; Cryomodule Design Details

Wednesday: Primary Session; MLI, Beam Dynamics and RTML, Secondary Session; LLRF Studies at Flash

- ML Topics – SCRF

- Monday (Nov.17) morning: Progress on achieving gradient (S0)

TTC summary on High gradient R&D, New Reports from three regions, New topics, Status of alternatives (60 mm designs, large grain), Plans for TDP1 period

- Monday (Nov.17) afternoon: Status of Facilities and Horz/CM testing (S1/S2)

TTC summary on module test and plan, New Reports or topics, S1-Global status report, S1-Global detail plan discussion for in-kind contribution, joint assembly, joint experiment

- Tuesday (Nov.18) morning: Toward Plug Compatibility

He vessel (material, pressure vessel constraints), Tuners, Couplers (OD, location, Q control, cryo losses), Interface location discussion, Summary document for plug compatibility

- Tuesday (Nov.18) afternoon: Cryomodule Design and Tests

Module status report from each region, New Reports or topics on the module performance and design, 5K shield removal experiment, H. P. Vessel code discussion

C: HLRF agenda will be discussed in the coming HLRF webex meeting and cryogenics slots will be included.

### **4) SCRF meeting schedule**

- Next SCRF WebEx meeting: November 26, 14:00- GMT.

- LCWS-08, GDE meeting in Chicago: November 16 – 20.

- GDE meeting and AAP (interim) review in Tsukuba: April 17 – 21, 2009.